



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,431	02/27/2004	Scott A. Leman	27581/01367.1	7015
22852	7590	02/27/2006		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER RIDDLE, KYLE M	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/788,431

Applicant(s)

LEMAN, SCOTT A.

Examiner

Kyle M. Riddle

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Pre-Appeal Brief Request for Review

1. Applicant's Pre-Appeal Brief Request for Review Remarks were deemed persuasive pertaining to certain claims and, therefore, the finality of that action is withdrawn as noted in the Notice of Panel Decision from Pre-Appeal Brief Review mailed 2 December 2005.
2. The arguments presented in the Pre-Appeal Brief Request for Review received 14 October 2005 were deemed persuasive, however, a new non-final rejection is set forth below.

Claim Objections

3. Claim 14 is objected to because of the following informalities: Claim 14 as originally filed on 27 February 2004 is dependent from claim 13, but the claim listing in applicant's amendment received 21 March 2005 has claim 14 dependent from claim 12 as originally filed (page 8 of the amendment). Since it appears to the examiner that the intention was to keep the originally filed claim 14, claim 14 will be examined as it depends from claim 13. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 3-14, 16-20, 22-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Rammer et al. (U.S. Patent 5,692,469).

Art Unit: 3748

Re claims 3-8, 12, 16-18, and 20, Rammer et al. disclose an engine braking system comprising:

- an outlet valve 1 disposed in a port connected to an engine cylinder (column 6, lines 10-15; Figures 3 and 4);
- a fluidically driven valve actuator or control device 5 that also controls the flow of fluid (column 6, lines 36-67 with column 7, lines 1-15; Figures 3 and 4);
- a source of fluid at a predetermined pressure in communication with the control device 5 (column 7, lines 4-10), a force generated by the source of pressurized fluid being sufficient to take up lash between the control device 5 and outlet valve 1 (column 3, lines 24-29, column 4, lines 31-36, column 10, lines 1-8);
- an engine driven mechanical linkage or conventional camshaft with cam mounted proximate outlet valve 1 and adapted to move the valve 1 into an open position (column 6, lines 7-15);
- an actuator cylinder or bore 8 with a plunger or drive piston 6 disposed therein (column 6, lines 43-47);
- the control device 5 including an actuator piston or drive piston 6 disposed in an actuator cylinder or bore 8, having a rod or portion adapted to maintain the outlet valve 1 in an intermediate position between a closed position and an open position in a hydraulically locked configuration (column 6, lines 43-47, column 7, lines 32-47; Figures 3 and 4);
- a coil spring or closing spring mounted to the outlet valve 1 to bias the valve toward a closed position (column 6, lines 12-15);
- wherein the source of pressurized fluid is lubricating oil (column 7, line 5);

Art Unit: 3748

- maintaining the intermediate position for a predetermined period of time (abstract; column 5, lines 20-23, column 10, lines 29-33).

Re claims 9-11, 13, 14, 19, 22-28, Rammer et al. disclose an engine braking system comprising:

- filling the pressure space 15 with fluid and preventing backflow with control or check valve 17 (column 7, lines 38-41);

- removing the flow of fluid by shutting the exist opening of the relief duct 20 and check valve 17 to cause the driven piston 16 to be locked hydraulically in an intermediate position (column 7, lines 38-47).

Re claims 29-34, Rammer et al. disclose intermediately opening the outlet valve during the intake or induction stroke to allow a portion of exhaust gas to be reintroduced to the cylinder (column 10, lines 19-25) and restoring fluid communication through relief duct 20 of control device 5 to disengage the actuator allowing the outlet valve to close (column 7, lines 56-67 with column 8, lines 1-9).

6. Claims 22-24 are further rejected under 35 U.S.C. 102(b) as being anticipated by Fuller, Jr. et al. (U.S. Patent 4,050,435).

Fuller, Jr. et al. disclose a valve control system comprising:

- a mechanically driven actuator including a cam 24, a closing spring 22, and a mechanical linkage through a rocker arm 18 adapted to move the valve between an open and closed position (column 2, lines 58-63, Figure 2, column 4, lines 9-21, and Figure 3);

- a valve seat and engine valve 20 adapted to move from the open to closed positions (column 2, lines 58-61);

- a fluidically driven actuator 30 adapted to hold the exhaust valve in a hydraulically locked open position (column 4, lines 22-34 and Figure 5);
- an actuator cylinder 30 in fluid communication with a source of pressurized fluid (column 3, lines 16-32 and column 4, lines 24-30);
- a valve control unit for an intake or exhaust valve (column 3, lines 7-10);
- a valve control device with intermittent fluid communication for predetermined opening and closings, and an actuator piston 66 and hollow piston 50 forming the parts of a fluid ram or jack to force the valve open (column 4, lines 9-46);
- the source of pressurized fluid preferably being from the lubrication oil system (column 2, lines 17-20 and column 3, line 17).

7. Claims 22 and 24 are further rejected under 35 U.S.C. 102(b) as being anticipated by Arrieta (U.S. Patent 4,423,709).

Arrieta discloses a method for operating a multicylinder engine comprising:

- a mechanically driven actuator including a cam 45, compression spring 32, and a mechanical linkage through a rocker arm 37 adapted to move the valve between an open and closed position (column 3, lines 36-54, column 5, lines 21-38, and Figures 1, 4-5);
- a valve seat 35 and engine valve 30 adapted to move from the open to closed positions (column 3, lines 29-54);
- a hydraulically driven cylinder actuator 96 adapted to hold the intake valve in a hydraulically locked open position (column 5, lines 30-41 and Figures 4-5);
- a hydraulic actuator cylinder 96 in intermittent fluid communication with a source of pressurized fluid (column 5, lines 6-8 and Figures 4-5).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 15, 35-40 are rejected under 35 U.S.C. 103(a) as being obvious over Rammer et al.

Rammer et al. disclose an engine braking system comprising an outlet valve disposed in a port connected to an engine cylinder, a fluidically driven valve actuator or control device, a source of fluid at a predetermined pressure in communication with the control device, a force generated by the source of pressurized fluid being sufficient to take up lash between the control device and outlet valve, an engine driven mechanical linkage or conventional camshaft with cam mounted proximate outlet valve and adapted to move the valve into an open position, an actuator cylinder or bore with a plunger or drive piston disposed therein, the control device including an actuator piston or drive piston disposed in an actuator cylinder or bore, having a rod or portion adapted to maintain the outlet valve in an intermediate position between a closed position and an open position in a hydraulically locked configuration, a coil spring or closing spring mounted to the outlet valve to bias the valve toward a closed position, wherein the source of pressurized fluid is lubricating oil, maintaining the intermediate position for a predetermined period of time, filling the pressure space with fluid and preventing backflow with control or check valve, removing the flow of fluid by shutting the exist opening of the relief duct and check valve to cause the driven piston to be locked hydraulically in an intermediate position, and intermediately

Art Unit: 3748

opening the outlet valve during the intake or induction stroke to allow a portion of exhaust gas to be reintroduced to the cylinder and restoring fluid communication through relief duct of control device to disengage the actuator allowing the outlet valve to close. They, however, fail to disclose the valve system being used for an intake valve and holding the intake valve open during a portion of the compression stroke.

Rammer et al. suggest opening the exhaust valve during the compression stroke (column 7, lines 52-55), and the use of valve actuation systems designed for one type of valve (exhaust) is well known in the art to be applicable to the other type of valve (intake), and therefore the use of the valve system of Rammer et al. for intake valves would be a matter of obvious choice to one of ordinary skill depending on space considerations, exhaust gas recirculation, and desired engine performance.

10. Claims 1, 2, and 21 are rejected under 35 U.S.C. 103(a) as being obvious over Rammer et al. in view of Israel et al. (U.S. Patent 5,996,550).

Rammer et al. disclose the invention cited above, however, fail to disclose the source of pressurized fluid being insufficient to move the valve element to the open position.

Rammer et al. disclose that the intermediate position is a catching position with the pressurized fluid being of a predetermined pressure (column 7, lines 5-15), and Israel et al. teach a low pressure system through check valve 302 and solenoid valve 310 to open valves 200 (column 7, lines 52-67 with column 8, lines 1-5), the hydraulic actuating means being less than the mechanical actuating means (column 12, lines 12-16). It would be a matter of obvious choice to one of ordinary skill that the intermediate position of the hydraulic means of Rammer et al., being a catching position, could have a predetermined lower pressure fluid as taught by

Art Unit: 3748

Israel et al., and this low pressure fluid being insufficient to move the valve into an open position. Such an insufficient force on the hydraulic actuating device would be obvious to either Rammer et al. or Israel et al. depending on fluid leakage, spring biasing, mechanical wear, and performance desirability.

Communication

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (571) 272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle
Examiner
Art Unit 3748

kmr



THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700